



A U.S. Department of Defense Information Analysis Center (IAC) sponsored by the Defense Technical Information Center (DTIC)

The DoD Chemical Demilitarization Program: Start-Up at Tooele

By Dr. Ned Covington

BASELINE INCINERATION TECHNOLOGY

Chemical Weapons (CW) munitions have been around since the First World War and methods for CW destruction are the product of evolution. Many of the methods routinely practiced in the past, such as open-pit burning, atmospheric venting, land burial, and dumping in the deep ocean are no longer acceptable to our environmentally-conscious public today. Correspondingly, over the past 25 years, the Army has studied varying methods of chemical neutralization and thermal incineration and meticulously developed a technology known as "reverse assembly followed by incineration" or simply "baseline incineration." This technology was pioneered at the Chemical Agent Munitions Disposal System (CAMDS) at Tooele and validated at the Johnston Atoll Chemical Agent Destruction System (JACADS). It will now be further refined at Tooele Chemical Destruction Facility (TOCDF). The baseline incineration technology is expected to be used to accomplish most of the CW destruction throughout the U.S. The Army is building upon its success with baseline incineration at JACADS and will continue to do so at TOCDF. As lessons are learned about accomplishing the destruction more safely and efficiently, these experiences will be used to develop and incorporate improvements to destruction facilities at the follow-on sites.

The National Research Council (NRC) of the National Academy of Sciences has repeatedly endorsed the baseline incineration technology as being a technically sound method of destroying CW, safely and efficiently. In response to Congressional interest, however, the NRC has recently evaluated a number of alternative technologies for the destruction of bulk chemical agents and has offered recommendations to the Army for the

incorporation of these technologies into the overall chemical demilitarization program. The Army is now considering the recommendations of the NRC. It must be emphasized that the development of a suitable CW destruction technology requires considerable time and effort. Today, the baseline incineration process is the only proven technology available for large-scale destruction of the CW stockpile.

The NRC previously determined that the greatest risk associated with the CW stockpile is prolonged storage. To minimize this risk, the NRC has recommended that the Army get on with the destruction of the stockpile as quickly as possible, using baseline incineration. Alternatives to the baseline technology should be considered, but the consideration should be accomplished simultaneously with the ongoing destruction effort. The comparative risk between continuing to store chemical munitions and active destruction, increases as we continue to prolong storage without destruction activities.

DESTRUCTION HAS STARTED

On August 22, 1996, the first full-scale CW demilitarization facility in the continental United States began destruction of the U.S. stockpile, which is made up of about three million items containing more than 30,000 agent tons of CW. The facility, known as the Tooele Chemical Destruction Facility (TOCDF), is located at the Tooele Army Depot in Utah. Although U.S. CW destruction operations actually began in 1990 at Johnston Atoll in the Pacific Ocean, TOCDF is the first facility to be located within the geographic borders of the U.S. The CW destruction effort is expected to be completed in December 2004 as mandated by Public Law 99-145, also known as the National Defense Authorization Act of 1986. Following the start of operations at TOCDF, it is planned that chemical

destruction facilities similar to TOCDF will be constructed at the remaining seven sites in the U.S. These sites will incinerate and safely destroy CW stockpile munitions stored at the respective locations.



Tooele Chemical Destruction Facility (TOCDF), located at Tooele Army Depot, Utah

See "The DoD Chemical Demilitarization Program: Start-Up at Tooele"

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THOUGHTS FROM THE PENTAGON



Dr. Ted Procriv, Deputy Assistant to the Secretary of Defense (Chemical and Biological Matters)

By Dr. Ted Procriv

This is the fifth of our quarterly updates designed to keep the Chemical and Biological Defense (CBD) community up to date with activities of interest in the Pentagon. Our office is the focal point for the Office of the Secretary of Defense (OSD) staff for three major areas of importance; the DoD Chemical and Biological Defense Program, the DoD Chemical Demilitarization Program, and Chemical Weapons (CW) and Biological Weapons (BW) Arms Control Programs. This article addresses our recent efforts to establish a better partnership with industry for the NBC Defense mission area.

A unique conference was held Oct. 1-2, 1996, at the Edgewood Conference Center Seminar Area, Aberdeen Proving Ground in Edgewood, Maryland. The 1996 Conference on Industry Independent Research and Development (IR & D) for Chemical and Biological (CB) Science and Technology (S&T) encouraged improved partnering and reviewed industry IR&D efforts to support the NBC Defense S&T base. This conference was the first of a series which will help industry partner with our joint NBC Defense Materiel Development Community members. The Joint Service

Material Group (JSMG), the Joint Science and Technology Panel for CB Defense, and the Service RD&E centers and laboratories are committed to improved partnership with industry.

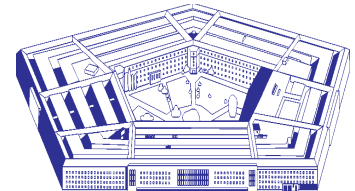
On behalf of the Department of Defense, I opened the conference with a discussion of our basic philosophy with regards to industry IR&D. I believe that we need to get industry to invest more of their own resources and research dollars, and we will provide them with sufficient information and feedback through various commodity area panels as to the importance of their work. The work which we encourage and assess as satisfactory could reach the point of co-investment. The DoD would co-invest in the product that industry is trying to develop. The industry would then seek to take the concept to maturity, and recover their costs by selling the product to the U.S. government. We are encouraging industry to make an investment up front which, if successful, will yield a product and a successful business relationship with the government.

Briefings were also presented by DoD to address Science and Technology CB defense programs and technologies critical for CB defense in the 21st Century. In addition, industry representatives briefed their S&T capabilities/technologies to attending government scientists and program managers.

In addition to this conference there are other coordination mechanisms being executed by our office for better industrial liaison. Four times a year, I will convene an industry roundtable. Every April, in conjunction with the yearly Advanced Planning Briefing for Industry (APBI), we will have an industry roundtable and invite senior executives of our industries involved with CB Defense for open discussion of future opportunities available. In addition, three more meetings will be held, generally as breakfast meetings where open discussion will be encouraged and featured speakers will talk to the industry group. These will be open to any member of industry interested in attending. Thirdly, our office strongly supports the formation of an NBC Defense Industry Group. This group was formed a few months ago and currently has 26 members. The Industry Group meets once a month. Our plan is to provide them marketing information which

they would share with their members. Typically, our role in this industry group is to provide NBC defense information on military and civil matters to the industry. This exchange of information should improve the understanding of our CB defense mission needs, and thereby improve the program to provide force protection capabilities to our joint forces.

I strongly believe that in an era of downsizing, an era of declining budgets and greater scrutinized budgets, that we need to improve communications with industry. True partnerships with industry will provide our programs a greater probability of succeeding within the current environment. The partnership has to engender the trust of both members. We in government, can learn a lot from industry and likewise industry can learn a lot from the government, particularly with respect to requirements and concepts. A strong government/industry team/partnership, working together in lock step would make a very powerful tool for combating the ever growing NBC threat and the newly emerging counter-terrorism concerns.



Archiving Digital Information Electronic Document and
Defensive Copyright in the Electronic Age
Federal CD-ROM Products Graphics on the Web SBIR/STTR High
Tech R&D Web as a Collaborative Environment for
Government Internal Security Issues Digital Libraries
Reinventing Reference Open Source Information System
Special Projects at Argonne National Laboratory JAVA
Serving the Nonproliferation and Arms Control Community
Defense Information Systems Center (DISA) WWW Internet
System
and Delivery Copyright in the Electronic Age Federal
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and Delivery Copyright in the Electronic Age Federal
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Government Internal Security Issues Digital Libraries

DTIC '96

Annual Users Meeting & Training Conference

Meeting the Challenges of Changing Technology

November 4-7, 1996
DoubleTree Hotel National Airport
Arlington, VA
For more information contact:
Ms Julia Foscoe (703) 767-8236

Army Chemical Company Provides Olympic Support

CPT. Mark Lee, Commander, 11th Chemical Company, Ft. McClellan, AL

Imagine the terrorists dream and an Olympic nightmare. Transplant a Tokyo chemical subway attack into one of Atlanta's MARTA stations or into an Olympic venue, or into the Centennial Park. Use a small amount of nerve agent and produce several thousand casualties.

The Centennial Olympic Games in Atlanta, Georgia evolved into the largest sporting event the world has ever seen. Covering a five state area, the events of the Games were spread out at 32 different sites. During the period 18 July to 4 August 1996, athletes from 200 countries helped make the Atlanta Games larger than the Los Angeles and Barcelona Games combined. Athletes, staff and volunteers numbered over 100,000, and close to 12 million tickets were sold. Following the Olympic games, the Paralympic games were conducted in the Atlanta area during the period 15-25 August 1996. The Paralympic games were second only to the Olympics in size and featured over 5,000 physically challenged athletes from over 110 countries.

Fortunately, had the need arisen, the local responders in the Atlanta area were prepared, and they had, at their disposal, trained forces ready to respond and assist in the mitigation of the consequences of such a terrorist attack. These forces had the capability to quickly establish a triage in the contaminated area, and decontaminate those civilians potentially exposed as well as the responders sent to evacuate them.

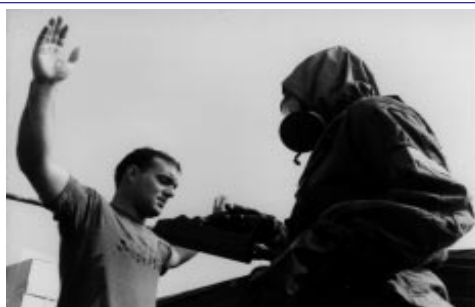
To counter the potential terrorist threat, the local government adopted a two pronged approach. Law enforcement, coupled with their federal counterparts, formed the crisis mitigation effort. All of these efforts were focused on finding the individuals and their weapons before they were used. The second prong was consequence management. This dealt with the actions that must be taken after an incident to minimize the effects of a chemical agent. The response effort that was developed was a local and federal response designed to bear the efforts and assets of the DoD, as well as other agencies such as the Public Health Service, Centers for Disease Control and the Federal Emergency Management Agency. Among the DoD agencies chosen

to support this mission was the 11th Chemical Company, 84th Chemical Battalion, Fort McClellan, AL.

The 11th Chemical Company was uniquely qualified for this mission. In addition to being a tactical unit with a wartime alignment with the XVIII Airborne Corps at Ft. Bragg, NC, it also provides the Chemical Accident/Incident Response Force for the Chemical Defense Training Facility at Ft. McClellan and the back-up support for the Anniston Army Depot.

During the period of the Olympic games, the 11th Chemical Company was placed on alert and was prepared to deploy from Ft. McClellan, within 30 minutes of notification, to arrive at a variety of Olympic venues. Its mission was to provide patient extrication and decontamination. This heightened alert status required the unit to move into barracks on post and all off-post activities were curtailed.

The unit conducted specialized training exercises which focused on the actions and procedures required upon arrival at an urban site with potential toxic chemical contamination. Dr. Mitchell B. Wallerstein, Deputy Assistant Secretary of Defense for Counterproliferation Policy, while enroute to visit the U.S. Army Chemical and Military Police Schools at Ft. McClellan, took time to visit the unit during the training exercises and observe their capabilities.



(Photo by Sgt. Terry J. Goodman)

Sgt. Craig Flint, 11th Chemical Company, uses a Chemical Agent Monitor to test a casualty for chemical exposure.

There were some modifications that had to be made to the unit decontamination procedures. Fundamentally, decon is decon. But the procedures had to be

changed to accommodate a large number of civilians, both ambulatory and non-ambulatory, as well as the responders in their respective protective gear. Further accommodations were made for decontamination in the urban environment.



(Photo by Sgt. Terry J. Goodman)

Pfc. Michael Toomey, 2nd Platoon, 11th Chemical Company, rolls out plastic used to construct the sides of decon showers.

For the Paralympic Games, the Company was forward deployed to the Atlanta Metro area. All Paralympic events took place in the greater Atlanta area. The unit was stationed with JTF Olympics at an unused Delta airlines training facility just inside the Atlanta beltway. The unit conducted extensive training with the local fire departments so that each was familiar with the other's capabilities.

The capability of the company was enhanced by the attachment of a medical support team from Ft. Stewart, GA. This 17 person team included two doctors, two physician assistants and 12 Army medics. All personnel completed training, focusing on the specific treatment requirements of a chemical casualty. Their mission was to triage and treat potentially contaminated personnel in the contaminated area. The team tasked and organized itself to handle the treatment from triage until the patient was handed off to the local health care agencies.

See "Army Chemical Company Provides Olympic Support"

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TAT FOCUS

TARA'96 Documents Available On-Line

By John N. Lesko

Earlier this year, the **CBIAC** assisted the Office of the Assistant Secretary of Defense for Chemical and Biological Matters by hosting the annual Chemical and Biological Defense Technical Area Review and Assessment (**TARA**). These annual reviews provide DoD leadership with an assessment of current programs and recommended direction for the future. The reviews are held in conjunction with and in support of similar reviews of other technical commodity areas by the Director, Defense Research and Engineering (**DDR&E**). An electronic copy of the **TARA'96** briefing to the **DDR&E** can be found on-line at the following Internet URL: <http://www.cbiac.apgea.army.mil/ird96/tara.html>.

The **TARA** process provides the Science and Technology (**S&T**) community with an external evaluation of DoD programs. The principal reviewer for each technical sub-area came from outside the DoD **S&T** community. Select government **S&T** experts complemented this external group. Members of the **TARA'96** team included: Dr. Ted Prociw (Chairman, **OASD-C/BM**), Dr. Bob Beaudet (University of Southern California), Mr. Matt Hutton (**OptiMetrics Inc.**), Dr. Ed Poziomek (**Old Dominion University**), Dr. Gary Resnick (**U.S. Army Dugway Proving Grounds**), Dr. Ray Mackay (**Clarkson University**), Ms. Denise Pobedinski (**OASD-RDA**), Dr. Mildred Donlon (**DARPA**), and Mr. Brian David (Joint Program Office for Biological Defense).

This panel of experts used a computer-mediated group decision support system called the **Battelle Round Table** to gather its evaluative remarks and to score each project/presentation. Technical and administrative support was provided by an **OASD-CBM/CBIAC-Battelle** team consisting of Dr. Sal Bosco, MAJ Scott Borg, Ms. Gail Dempsey, Mr. Jeff Farr, Mr. Jerry Abrams, Ms. Vicki Currie, and Mr. John Lesko.

CONTRACT AWARDS

1. Subminiature Biological Threat Detection System.
David Sarnoff Research Center, Inc.
201 Washington Rd.
Princeton, NJ 08543-5300
\$9,595,138. 11 July 1996
By **NCCOSC RDTE** Division
2. Design and Build Portable Systems for Immunoassay (Detection/Identification) of Trace Chemical Compound.
Research International
Woodinville, WA 98072
\$497,100. 1 July 1996
By Office of Naval Research
3. Topical Skin Protectant (**TSP**) Manufacturing Development.
McKesson Bioservices
Montgomery Executive Center,
Suite 322
6 Montgomery Village Avenue
Gaithersburg, MD 20879
\$1,686,094. 30 September 1996
By U.S. Army Medical Research, Acquisition Activity
4. Nosecups for M40/M42 Chemical and Biological Protective Masks.
Mine Safety Appliances Company
P.O. Box 428
Pittsburg, PA 15230-0428
\$86,999. 11 September 1996
By Commander, Pine Bluff Arsenal
5. Detection of Toxin and Chemical Agents.
Biopraxis, Incorporated
P.O. Box 910078
San Diego, CA 92191
\$98,201. 4 September 1996
By U.S. Army Research Office

NEW CBIAC HOMEPAGE ADDRESS!

Yes, we have a new address. Our old one still works, but if you are updating your address list, here is the new **CBIAC** Homepage URL:

<http://www.cbiac.apgea.army.mil>



Twenty Firms Form Industry Group to Support Chemical and Biological Defense



More than twenty organizations in the nuclear, chemical, and biological defense business have formed the **NBC Industry Group**. The organizations include hardware developers and manufacturers, software and support contractors, nonprofit organizations, and consultants. The Group formed on an ad hoc basis in December 1995 and formally organized July 1, 1996, with the election of officers and adoption of the charter.

The purposes of the Association are:

- To provide information on **NBC** civil and military matters to the U.S. Armed Forces, other appropriate Government agencies of the United States and the general public.
- To improve understanding of the importance of **NBC** defense and its contribution to the ability of the United States to carry out its global responsibilities.
- Generally, to advance **NBC** information, technology, and materiel for any purposes proper and lawful for the Association.

"The **NBC Industry Group** offers a number of advantages to both industry and government," said Chairman Billy Richardson. "The Group will serve as a conduit for the exchange of information among industry, government, and the public."

The Group meets the third Thursday of each month at rotating industry sites in the greater Washington area. Activities usually include invited speakers from government or industry, exchange of information on current events in the area, and discussion of emerging trends and requirements.

The **NBC Industry Group** can be contacted at P.O. Box 3582, McLean, VA 22130 or at the e-mail address: parksw@va.jaycor.com.

ONGOING AND RECENT ACTIVITIES

Current Awareness

• Ms. Jeanne Rosser and Mr. Don McGonigle attended the Air Force 3rd Scientific and Technical Information (STINFO) Conference and Training Workshops held September 9-12, 1996, at Williamsburg, VA. The CBIAC featured a display highlighting our informational products and services. CBIAC Starter Kits and Newsletters were available at the display area.

• The CBIAC coordinated and attended the 1996 Conference on Industry IR&D for CB S&T which was held October 1-2, 1996, at the Edgewood Area Conference Center, Aberdeen Proving Ground, Maryland (See Thoughts from the Pentagon). The CBIAC also created a conference homepage which includes details about the conference; day one briefings will soon be posted at this site: <http://www.cbiac.apgea.army.mil/ird96/>.

• Mr. Don McGonigle will brief attendees at the Defense Technical Information Center (DTIC) Annual Users Meeting and Training Conference, November 4-7, 1996, at the Double Tree Hotel in Arlington, VA. Mr. Fran Crimmins, Ms. Nancy Brletich, Ms. Jeanne Rosser, and Ms. Barbara Hoffman will be attending the conference. CBIAC Starter Kits, CBIAC Newsletters and information on the latest CBIAC products will be available at the CBIAC display located in the exhibit area.

Information Acquisition and Processing

• Documents on CW and BW Treaty Technologies, and CB Counter-terrorism were added to the CBIAC collection during fourth quarter, FY96.

Inquiry and Referral Services

• Last quarter, the CBIAC received 186 inquiries. More than nine percent of the inquiries were for information in Warning and Identification, while another nine percent of the requestors sought resources for Chemical and Physical Properties Data. Eight percent of the requests were in the area of NBC Survivability.

Products

• The latest CBIAC product is the Chemical Warfare Agent Simulant Training Kit, designed to simulate the color, viscosity and scent of specific nerve agents and blister agents. For details see the advertisement on the back cover.

Technical Area Tasks (TATs):

Since the last newsletter, 17 new tasks were awarded, effort was added to 27 ongoing tasks and six tasks have been completed. As of 30 September, 103 TATs have been awarded and work has been added to 117 tasks. Total value of TATs awarded is over 36.2 million dollars.

Do not hesitate to contact Ms. Judith Shetterly, CBIAC Administrator, if you would like further information on a CBIAC TAT. In order for us to help you most efficiently, please furnish the Government Contract Number you are working on (if any), the reason(s) you want the information, and your company address and phone number. We need this information in order to obtain release of information from the TAT sponsor.

Completed:

Task Description/Sponsor

4 Provide Technical, Engineering and Program Support to MARCORSYSCOM for their NBC Defense Programs
USMC/MARCORSYSCOM

38 Assess Air Sampling Capabilities Worldwide
USA/ERDEC

39 Provide Technical Analysis and Support to the Selected Access Collective Protection (SACPS) Installation Training Program and Associated Documentation
USN/NSWC

48 Assess the USA West Desert Test Center's CB Protective Clothing Testing Data Acquisition Management Systems
USA/DPG

52 Evaluate the Suitability of Proposed HD and VX Neutralization Methods for Use as a Demilitarization Process
USA/ERDEC

94 Determine the Effect of GB Vapor on Propellant Stabilizer, 2-NDPA
USA/PMCD

Underway:

Task Description/Sponsor

161 Conduct Clinical Studies and Associated Supporting Efforts on Vaccines, Pharmaceuticals to Protect U.S. Troops
USA/MMDA

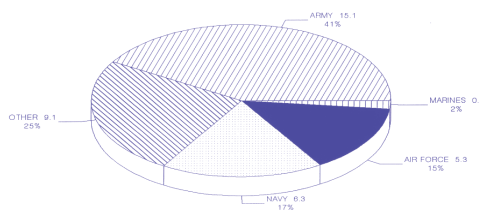
163 Provide Technical and Program Support to the LSCAD Team During Development and Acquisition of LSCAD
USA/PMNBCDS

165 Evaluate the Requirements for a Database Supporting Army Reporting Under Biological Treaties and Develop a Prototype Database
USA/MCMR

See "Ongoing and Recent Activities"

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TECHNICAL AREA TASKS (Millions)



CALENDAR OF EVENTS

The CBIAC highlights conferences, symposia, meetings, exhibitions and workshops of interest to the CB community in every issue of our newsletter. We invite CBIAC users to submit information on various events to the CBIAC, Attention: Ms. Mary Jo Waters or via Internet: watersm@battelle.org. Due to space limitations, the CBIAC will accept submissions on a first-come, first-served basis and reserves the right to reject submissions.

Date/Name/Location	Contact(s)	Date/Name/Location	Contact(s)
1996 MEETINGS		1997 MEETINGS	
Oct 28-29, 1996 Terrain Visualization	TTC Seminars Dept. TERV P.O. Box 3608 Torrance, CA 90510-3608 Tel: (310) 534-3922 Fax: (310) 534-0743	Nov 19-22, 1996 1996 Scientific Conference on Chemical and Biological Defense Research	Science & Technology Corp. Attn: Ms. Judy Cole 101 Research Drive Hampton, VA 23666-1340 Tel: (757) 865-7604 Fax: (757) 865-8721 E-Mail: cole@stcnet.com
Holiday Inn Hotel & Suites Washington, DC		Edgewood Area Conference Center Aberdeen Proving Ground, MD	
Nov 4-7, 1996 DTIC Annual Users Meeting And Training Conference	Defense Technical Info.Center (DTIC) Attn: Ms. Julia Foscue 8725 Kingman Road, Suite 0944 Fort Belvoir, VA 22060-6218 Tel: (703) 767-8236 E-Mail: jfoscue@dtic.mil URL: http://www.dtic.mil <u>For Registration:</u> Sociometrics, Inc. Attn: Ms. Denise Hannum 8484 Georgia Ave., Suite 850 Silver Spring, MD 20910 Tel: (301) 608-2151 Tel: (800) 729-0890 Fax: (301) 608-3542		
Double Tree Hotel Arlington, VA		Jan 28-30, 1997 Hazardous Materials & Waste Management Conference and Exhibition	Environmental Program Directorate NGB-ARE ARNG Readiness Center Attn: Bob Luther 111 South George Mason Dr. Arlington, VA 22204-1385 Tel: (703) 607-7980 Fax: (703) 607-7993
Nov 4-7, 1996 45 th Defense Working Group On Nondestructive Testing	DCPSO-TQ-Atlanta Attn: Mr. Flake Farley 805 Walker Street, Suite 3 Maretta, GA 30060 Tel: (770) 590-6856 Fax: (770) 590-6449 E-Mail: ffarley@dcmds.dla.mil	Mar 25-27, 1997 TARDEC Ground Vehicle Survivability Symposium	American Defense Preparedness Assoc. (ADPA) 2101 Wilson Blvd., Suite 400 Arlington, VA 22201-3601 Tel: (703) 522-1820 Fax: (703) 522-1885
Palm Beach Gardens Marriott Palm Beach, FL		Naval Postgraduate School Monterey, CA	
Nov 18, 1996 GreyWorks '96 The Second U.S. Workshop On Grey Literature	TransAtlantic/GreyNet Grey Literature Network Service Koninginneweg 201 1075 CR Amsterdam, Holland Tel: 31-20-671.1818 Fax: 31-20-671.1818 URL: http://www.konbib.nl/infolev/greyenet/home.html	Jun 10-12 Symposium on NBC Defence '97	Defence Forces Research Center (DFRC) Attn: Prof. Erkki Kantolahti P.O. Box 5 FIN-34111 LAKIALA Finland Tel: 358 3 284 3211 Fax: 358 3 284 3333 URL: http://www.pvtk.mil.fi and click "Ajankohtaista"
The Inn and Conference Center University of Maryland University College College Park, MD		Hotel Rantasii Sveitsi Hyvinkää, Finland	
Nov 18-21, 1996 Information and Command and Control Warfare	The George Washington University Continuing Engineering Education Washington, DC 20052 Tel: (800) 424-9773 (202) 496-8444 Fax: (202) 872-0645 E-Mail: ceepinfo@ceep.gwu.edu URL: http://www.gwu.edu/nceep	Jun 17-20 Security Technology	American Defense Preparedness Association (ADPA) 2101 Wilson Blvd., Suite 400 Arlington, VA 22201-3061 Tel: (703) 522-1820 Fax: (703) 522-1885
Washington, DC		Virginia Beach, VA	
		Jun 25-26, 1997 Chemical Biological APBI	American Defense Preparedness Association (ADPA) 2101 Wilson Blvd., Suite 400 Arlington, VA 22201-3061 Tel: (703) 522-1820 Fax: (703) 522-1885
		Laurel, MD	

SELECTED INQUIRY RESPONSES

This section of the newsletter contains recent inquiries and responses on subjects we feel are of interest to our users. The information presented has been edited to conserve space. If you would like further detail, please contact Mr. Steven Jones (jones@battelle.org) at the **CBIAC** and provide the reference number if available.



Q: Are any reports available that provide information about the U.S. biological weapons program?

A: Some reports available for public release with unlimited distribution are listed below:

- **A History of Biological and Toxin Warfare (CB-029580, AD-D754343)** contained within Director's Series on Proliferation, May 94 (CB-029578, AD-D754341)
- **Biological Warfare-A Short History (CB-028695, AD-D754300)**
- **Introduction to Biological and Toxin Weapons Today (CB-022132, AD-D753375)**
- **The Birth of the U.S. Biological Warfare Program (CB-017133, AD-D753374)**

Q: Is there a report available which provides a list of biological agents of potential military significance?

A: Yes, the **Australia Group Report, AG/Dec91/BW/D/4 Germany: Biological Agents Subject to Export Controls**, provides a comprehensive listing of potential agents. (CB-030276, AD-D754979)

Q: Chemical and biological terrorist activities have increased worldwide. Is there any unclassified information available on counter-terrorism policies or programs in the U.S.?

A: In response to the growing concern about both military and civilian safety in the event of a chemical and biological terrorist attack, the August 14, 1996 issue of *Jane's Defence Weekly* contains an excellent, detailed overview of U.S. counter-terrorism efforts, entitled, **Chemical and Biological Terrorism**. The article lists U.S. military and federal agencies that have been created or coordinated to deal with a terrorist attack, and a brief list of counter-terrorism technologies. The chemical and biological warfare agents that could be used in an attack and their effects are also summarized.

Q: Where can I obtain information on the Fox/Fuchs vehicles?

A: The **CBIAC** has several brochures and reference texts that contain information about the Fox/Fuchs vehicles, including the following:

- **The Worldwide Chemical Detection Equipment Handbook (CB-028982, AD-0754461)**
- **Thyssen Henschel Defense Technology brochure, Tpz1 FOX Armored Vehicle NBC (CB-014764, AD-B106986)**
- **Jane's NBC Protection Equipment, Eighth Edition, 1995-1996 (CB-030153, AD-D754918)**

Information on the Fox/Fuchs vehicles is also on the Internet at the following URL's:

<http://www.dote.osd.mil/reports/FY95/nbc.html>

<http://www.cbdcom.apgea.army.mil/RDA/pmnbc/fox.html>

<http://www.sc.ist.ucf.edu/~ERDEC/dis/apps/xm93e1.htm>



"Army Chemical Company Provides Olympic Support"

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The 11th Chemical Company also received additional detection capabilities in the form of two M93 Fox Reconnaissance Vehicles deployed from the U.S. Army Chemical School. These Foxes recently had their detection capability expanded with the installation of newer software for the mass spectrometers. This "catalog upgrade" allowed them to characterize and identify over 150 industrial hazardous chemicals as well as the traditional militarily significant compounds.

The final element of preparedness was the acquisition of specialized **HAZMAT** type equipment which facilitated personnel decontamination operations. This included such things as butyl rubber sumps for the collection of waste water and a large number of hospital gowns for issue to decontaminated civilians.

In spite of all this training and equipment, the key to the company's readiness remains its **Chemical Specialists**. Each soldier is a school trained, experienced **NBC** professional. Additionally, every chemical soldier in the company has trained with toxic chemical agents (**GB** and **VX**) at the **Chemical Defense Training Facility (CDTF)** at Ft McClellan, **AL**. Although the company's unique capabilities and training were (thankfully) never required, the unit was fully prepared to respond. This mission provided the unit with additional perspective into the challenges involved in dealing with domestic chemical terrorism.

CB NEWS EXCERPTS

In order for the **CBIAC** to inform its readers of recent **Chemical/Biological Defense** activity throughout the United States and around the world, we have compiled a list of related **CB** news articles and have taken excerpts from them to create brief overviews. Please note that the **CBIAC** does not provide secondary distribution of articles. We can, however, provide direction on where to find an article of interest.



Receiving CW Contaminated Casualties Aboard the Hospital Ship Comfort, **Edgewood Quarterly**, Issue No. 8, June 1996. The third hospital ship to bear the name **Comfort**, a 1,000 bed medical treatment facility with 12 operating rooms, has recently trained a decontamination team to be able to handle chemically/biologically contaminated patients. The **Comfort** on the east coast, and the **Mercy**, another hospital ship located on the west coast, are not normally expected to accept patients who have not been decontaminated; however, in the event of that need, the capability exists.

The FOX Goes to Bosnia, **Edgewood Quarterly**, Issue No. 8, June 1996. The 1st Armored Division was deployed to **Bosnia** in mid-December of last year. The **FOX** Platoon from the 25th Chemical Company was deployed with them, along with seven **FOX** vehicles. Lessons learned from the first couple of months of the mission have been identified. The **FOX** is equipped with the ability to detect nuclear, biological and/or chemical contamination in its immediate environment through point detection and at a distance through the **M21 Remote Sensing Chemical Agent Alarm**.

Moore, Timothy. **Tactical Tips for Remediating Formerly Used Defense Sites**, **Environmental Engineering World**, July-August 1996. This article focuses on a common-sense checklist for private project managers attempting to remediate sites containing or highly suspected of containing some form of chemical warfare material (**CWM**). Intended to promote proper planning for **CWM-Remediation** effort, Mr. Moore writes a follow-up to his article that appeared in the May-June 1995 issue entitled, **Rising to the Challenge in Military-Site Clean-Ups**. Key resources for historical documentation are discussed, as well as organizations and agencies that may assist in locating them. A three-phase approach is presented: 1.) Site evaluation and project planning; 2.) Project execution; 3.) Remediation operations. The remainder of the article is devoted to specific recommendations for gathering historical site information, assembling a team, addressing safety issues, planning for adequate analytical support, ensuring a thorough medical screening for workers and keeping appropriate government site managers and the public informed. The next major segment of the article provides thoughtful direction to the actual performance of the site clean-up and the final section is devoted to the follow-up actions that need to take place. The final advice is to "...think of **CWM**-laden sites as different than other contaminated sites. When in doubt always refer to the knowledge base that exists within industry and government."



A Reader Writes...



Referencing the **CBIAC** Newsletter article titled "**Edgewood Enterprise Reaches to Russia**", page 11 of the summer '96 issue, Mr. Kevin P. Duvall, Task Manager, Joint Evaluation Program, offered the following corrections and clarification in response to our summary of the article that appeared in the **Edgewood Quarterly**, No. 7, Dec. 1995:

The project in **Saratov, Russia**, referred to as the "Joint Evaluation Program", is an **OSD**-sponsored program under the auspices of the **Cooperative Threat Reduction (CTR)** Program, executed by the Program Manager for **Chemical Demilitarization (PMCD)**, Office of the Product Manager for **Cooperative Threat Reduction (PMCTR)**, located at the **Edgewood Area of Aberdeen Proving Grounds, Maryland**. The overall goal of the Joint Evaluation (**JE**) Program was to demonstrate the effectiveness of the **Russian Two-Stage Chemical Agent Destruction Process for Organophosphorus Nerve Agents**. The experiments conducted in **Saratov, Russia**, were in fact the second phase of experiments conducted during the **JE** Program (the first phase being conducted at **Edgewood**).

There were many elements and facets to this project. One facet involved evaluating the **Saratov** laboratory for feasibility in conducting neat chemical agent lab work. It is not, however, the overall goal of the project. The lab was refurbished and renovated to meet agreed lab standards for conducting hazardous laboratory work with toxic substances, not redesigned for chemical agent demilitarization operations. The refurbished laboratory underwent final safety and environmental assessments/checkouts, and passed. However, problems with the electrical and **HVAC** subsystems had to be fixed prior to the commencement of the Phase 2 experiments.

It was stated in the article that the "project was part of the **Bilateral Chemical Weapons Treaty** between **Russia** and the **United States**". There is no such treaty in place, nor has there ever been. The **CTR** program, while not linked to the **Chemical Weapons Convention (CWC)**, does in fact support the goals of the **CWC** for the total elimination of chemical weapons.

Canadian Programs in BW Agent Detection

By Dr. W. Stewart Myles

Like the other coalition members, Canada had no in-service equipment for detecting and identifying **Biological Warfare (BW)** agents when Saddam Hussein invaded Kuwait. In the weeks that preceded the outbreak of hostilities, scientists and engineers at the Defence Research Establishment Suffield (**DRES**) scrambled to put together a system based on ongoing research. The system that was developed, called the Mobile Atmospheric Sampling and Identification System (**MASIF**), used particle sizing and counting technology to cue collection of a sample for analysis by a standard Enzyme-Linked Immunosorbent Assay (**ELISA**) method. The results of their effort left Medicine Hat, Alberta, for the Middle East by military aircraft on 23 January 1991. While **BW** agents were never used, **MASIF** served its purpose by giving Canadian troops confidence that they would have sufficient warning of a **BW** attack and could thus go about their duties with protective equipment at the ready. A more detailed account is available in a **DRES** publication entitled, *Today Science - Tomorrow Defence*.

As soon as the war ended, the military began to work with **DRES** to define Canada's requirements for a system to be fielded at the beginning of the next century. This process and the subsequent **R&D** were carried out in close cooperation with the U.S. and U.K. through the Memorandum of Understanding (**MOU**) on chemical and biological defence (**CBD**). All three countries decided to use existing technology where possible and to be prepared to adopt a successful development made by one of the other nations. In September 1995, all three countries tested concept demonstrators at joint field trials held at Dugway Proving Ground (**DPG**), Utah. At these trials, the Canadian Integrated Biochemical Agent Detection System (**CIBADS**) was so successful that a major contract has been awarded to Computing Devices Canada Ltd to build an advanced development model (**ADM**).

While **CIBADS** has many features in common with the systems developed by the U.S. and U.K., there are significant differences. The most important of these is a component which is capable of



characterizing aerosols by simultaneously measuring the aerodynamic size and fluorescence of individual particles. This device was developed by Dr. Jim Ho at **DRES** working with **TSI Inc** (St. Paul, MN), who manufacture particle sizing and counting equipment, and **Dycor Inc.** (Edmonton, AB), who developed the software. According to Dr. Greg Luoma, the project leader at **DRES**, the Fluorescence Aerodynamic Particle Sizer (**FLAPS**) can potentially provide an alarm and a cue for sample collection. Dr. Luoma points out that the instrument detects components of particles of biological origin. As a result, he says, the chance of false alarms can be greatly reduced. This program has attracted the interest of the U.S. Army who will be purchasing several units from **TSI Inc.** to evaluate **FLAPS** as a candidate for incorporation in their **BIDS** system as a pre-planned product improvement.

In the **ADM** for **CIBADS**, the XM-2 virtual impactor, developed by the U.S. Army, will be used to concentrate the air sample for **FLAPS**. These two devices, together with a capability to detect chemical agent, constitute key components of the detector module to be known as **CB Sentry**. The chemical detector in **CIBADS** will be a commercial device, probably based on the latest developments in ion mobility spectrometry. Eventually **CB Sentry** will be integrated with an identification module to form the complete **ADM**. Several technologies for identification, based on immunochemistry and all available from commercial sources, are being evaluated and the selection will be made in 1997. Long term research is underway to investigate the potential of alternative identification technologies, such as capillary electrophoresis and gene probe biosensors. The immediate target for **DRES** are trials for the **CB Sentry** at **DPG** in 1996 and the following year. If past accomplishments are any indication, the results of these trials will be impressive demonstrating once again that small (in terms of resources) can be effective.

Dr. Myles served as the Director at the Defence Research Establishment Suffield (**DRES**) responsible for the **R&D** program in Chemical and Biological defence until his recent retirement in August, 1996. He is currently a consultant in the area of Chemical and Biological defense. His E-mail address is myles@agt.net at Internet.



LINK YOUR HOMEPAGE TO THE CBIAC!

If your organization works in **CB** Defense and would like us to provide our www homepage users with a link to your homepage, please e-mail Mr. Steven Jones (jones@battelle.org) a brief description of how your organization is involved or related to **CB** matters along with the **URL** (web address) for your homepage. The **CBIAC** will review all submissions and select those which are appropriate. You will be notified of our determination.



UPGRADE OF THE CBIAC BIBLIOGRAPHIC DATABASE



The **CBIAC** is completing a major upgrade to the Bibliographic Database (**CBIAC BD**). Improvements include a full-function desktop application for data entry and searches and a secure WWW interface for remote access for government personnel and government contractors (via Netscape™ Browsers). The database and user interfaces were developed using **BASISPlus™**, **BASIS Desktop™** Suite, and **BASIS WebServer™** from Information Dimensions Inc. If interested in beta testing, required keys and passwords can be obtained by contacting Ms. Judith Shetterly at the **CBIAC**.

"The DoD Chemical Demilitarization Program: Start-Up at Tooele"

Continued from Page 1

ALTERNATIVES TO BASELINE INCINERATION

Alternatives to incineration will continue to be an area of emphasis as the Army destroys the CW stockpile. Future study will go beyond concentration upon the "bulk only sites". However, Congress has already expressed an interest in evaluation of "complete round" destruction processes and it is likely that such processes will be pursued through the development of pilot activities to demonstrate their efficacy.

However, we must understand that there is no panacea for the elimination of the aging CW stockpile. There is no magic box into which we can deposit the chemicals and have them transformed easily into inert, safe substances. Whatever process may be developed to destroy the munitions is going to incorporate some features that the public may view as being less than desirable.

Regardless of the technology used, there is certain to be smoke stacks, waste streams, and effluvia which are the normal products of the destruction process. These by-products cannot be avoided. Essentially, any destruction process is going to look like a chemical factory and the public is likely to react adversely to such an appearance. Yet, if we wait for that magic solution, the destruction process will be prolonged indefinitely and this extended storage is exactly what the NRC has warned against. The Army will minimize the negative impact of CW destruction to the maximum extent possible, but the overriding principle will be the safety of the public and the workplace along with the protection of the environment. We must get on with the destruction process.

THE CHEMICAL WEAPONS STOCKPILE

The most troublesome items in the CW stockpile are the obsolete M55 rockets which contain highly toxic nerve agent. These rockets were produced over 30 years ago and are already well beyond their programmed period of storage. In many cases their aluminum warheads are reacting chemically with the nerve agent contained, to form highly acidic compounds which increase the leakage rate. Leaking M55 rockets are the biggest problem munitions in the stockpile and are the most likely items to continue to present storage concerns. The rockets will be the first munitions to be destroyed at TOCDF and at the remaining sites of their storage as the

follow-on destruction facilities begin operations. All M55 rockets stored at JACADS have already been safely and successfully destroyed.

ASSISTANCE TO COMMUNITIES

The major emphasis of operations at TOCDF, as will be at all the CW destruction facilities, is safety of personnel and protection of the environment. In order to be prepared for the unlikely event of a chemical accident, emergency operations centers have been set up in the areas adjacent to the storage installations.

Residents of these areas have developed plans that include alert/warning systems, protective equipment, and emergency procedures. The Army, in partnership with the Federal Emergency Management Agency (FEMA), continues to support the communities in this contingency planning effort.

PRODUCTION OF CHEMICAL WEAPONS

Historically, the Army manufactured CW until 1969, when the Nixon doctrine concerning no first use of CW effectively curtailed further production. Production was resumed in 1987, with the development of the binary CW munitions. The binary CW concept involved the combining of two relatively non-toxic compounds to form highly toxic CW only immediately prior to battlefield employment. This concept offers great advantages in safety during storage and handling of CW components as well as in maximizing battlefield options for CW use by combat commanders. At the U.S.-Soviet Washington Summit in 1990; however, Presidents' Bush and Gorbachev formally renounced the production of all CW with the signing of the Bilateral Destruction and Non-Production Agreement (BDA). Correspondingly, U.S. binary CW production was terminated the following year. Ironically, the U.S. and Russian sides have never completed the negotiation of requisite implementation protocols and the BDA has not entered into force for either side. Its status today is uncertain.

DECLASSIFICATION OF THE STOCKPILE

In January 1996, the Army formally declassified all quantitative data concerning its CW stockpile and revealed the complete disposition of the munitions. Tooele, which is the largest of the U.S. storage sites, contains about 44 percent of the stockpile. The Army has no CW stocks stored

overseas, having relocated its entire European stockpile from a site in Germany to Johnston Atoll in 1990. Johnston Atoll had also been the destination for U.S. CW stocks transported there from Okinawa in 1973.

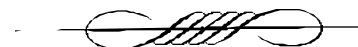
ARMS CONTROL IMPLICATIONS

The Chemical Weapons Convention (CWC), which has been signed by 160 nations and ratified by 61 (as of this writing) is expected to enter into force in early 1997. The U.S. Senate is now considering the CWC for its recommendation for ratification. With the 10-year period of destruction mandated by the CWC, all stockpiles worldwide owned by States Parties to the treaty will be required to be destroyed by 2007.

It should be noted that there are only two nations in the world that have formally declared the possession of CW stockpiles: the U.S. and Russia. Only the U.S. has the capability to safely destroy its stockpile, as it is now doing at TOCDF and JACADS. A significant U.S. effort is currently being directed at assistance to the Russians in developing a means of destroying their CW stockpile through the Cooperative Threat Reduction Program (CTR). Current CTR planning includes U.S. assistance in the design and construction of a prototype CW destruction facility in Russia.

THE DEPARTMENT OF DEFENSE CHARTER

As the U.S. stockpile is destroyed and the Russians follow our example by destroying their own stockpile, the threat of CW use by a major power will be diminished considerably. The use of CW by rogue organizations or nations, however, as a terrorist threat, remains a distinct possibility. The CWC will certainly provide a worldwide norm to discourage such use and will impose penalties under the force of international law as a deterrent, but the absolute eradication of CW cannot be guaranteed in the foreseeable future. The use of CW will remain a threat and our forces must continue to be ever vigilant to the possibility of such use. Our charter, in DoD, is to ensure that the U.S. fighting forces remain the best trained and the best prepared in the world to deal with such a threat. We take that charter very seriously.



Dr. Covington is the Special Assistant to the Deputy for Chemical and Biological Defense, Office of the Assistant to the Secretary of Defense for Nuclear, Chemical and Biological Defense Programs. His expertise is in Chemical Demilitarization and Chemical Weapons Arms Control.

"Ongoing and Recent Activities"

Continued from Page 5

- 166 Provide **High Quality NBC Training Instructional Materials** for Joint Service Application for **Operational and Strategic Level Leaders**
USA/Chem School
- 168 Obtain **Skin Pathology Data** on **Waste Streams** and/or **Degradation Products** Resulting from the **Chemical Neutralization/Detoxification of Sulfur Mustard**
USA/ERDEC
- 174 Evaluate the Feasibility of Providing **NBC Protection** to **Public Buildings**
USA/ERDEC
- 179 Provide **Technical Support, Quick Reaction Studies, Analyses, Experiments/Tests/Research** to Address **Issues Related** to the **Mission of the Arms Control and Treaty Assistance Directorate**
USA/CBDCOM
- 181 Evaluate the **USA-AMC Operating Plan** for the **Transportation of Chemical Materiel**
USA/ERDEC
- 182 Evaluate **Technologies for In-Situ Destruction of Toxins and Other Surety Agents**
USA/ERDEC
- 184 Convert and **Host the ERDEC Chemical Weapons Field Test Data** in an **Electronic Format** and **Accessible Database**
USA/ERDEC
- 186 Analyze **Critical Performance and Technical Requirements**, Perform **Quick Reaction Studies** and **Conduct Technology Assessments** for the **USN CBD Systems**
USN/NSWC
- 188 Assist the **Naval Construction Training Center (NCTC)** with **Modernization of NBC Training Capabilities**
USN/NCTC
- 192 Provide **Technical Project Planning Information** for **Hazardous Toxicological Radiological Waste (HTRW)** Projects with the Potential for **Contamination with Chemical Warfare Material**
USA/CE
- 193 Conduct **Analyses of Respirator Concepts and Requirements** for **Protection Against Biological Warfare Agents**
USA/ERDEC
- 194 Provide **Technical Engineering and Program Support** to the **Navy Clothing and Textile Research Facility (NCTRF)** in Support of **CB Protective Clothing Program**
USN/NCTRF
- 196 Establish a **Database for the Respirator Encumbrance Model** to Allow for **Assessment of Mask Designs**
USA/ERDEC
- 203 Provide **Technical and Analytical Assistance** to the **USA Chemical School** in **Relocating its Rolls, Missions and Functions** to **Fort Leonard Wood**
USA/Chem School

CBIAC STATISTICS

Total CBIAC documents accessible through DTIC DROLS: 8,105

Shared!: 4,851 Unique?: 3,254

Total documents added to the CBIAC BD during Fourth Quarter, FY96: 578

Total document citations available through the CBIAC BD: 47,044

Total documents on site: 25,957

Total inquiries received during Fourth Quarter, FY96: 186

Technical: 49
Informational: 66
Bibliographic: 68
Referral: 3

Total TATs awarded since contract initiation 103:

Completed: 24
Ongoing: 79

Total newsletter subscribers: 2,296

- 1 Existing DTIC records appended with CBIAC terms
- 2 New DTIC records created by the CBIAC

Chemical and Biological Defense Information Analysis Center



CBIAC
Serving the CB Defense Community

The CBIAC Newsletter is a quarterly publication of the Chemical Warfare/Chemical and Biological Defense Information Analysis Center (CBIAC). The CBIAC is a Department of Defense (DoD) Information Analysis Center (IAC), administratively managed by the Defense Technical Information Center (DTIC) under the DoD IAC Program.

Government agencies and private industry under contract to the Department of Defense can contact the CBIAC for informational products and services. The CBIAC serves as the center for the acquisition, compilation, analysis and dissemination of information relevant to chemical warfare and chemical and biological defense technology.

The CBIAC is located in Building E3330, Aberdeen Proving Ground-Edgewood Area, Maryland 21010. For further assistance or information visit or contact the CBIAC Monday through Friday from 8:00 a.m. to 4:00 p.m., EST:

Mailing address: CBIAC
P.O. Box 196
Gunpowder Branch, APG,
MD 21010-0196

Tel: 410-676-9030 Fax: 410-676-9703
Email: cbiac@battelle.org
URL: <http://www.cbiac.apgea.army.mil>

CBIAC STAFF

Fran T. Crimmins Director; Manager, Technical Area Tasks (TATs); (crimmins@battelle.org)

Nancy R. Brletich Deputy Director; Manager, Core Program; (brletich@battelle.org)

Donald B. McGonigle Manager, Information Support Systems; (mcgonigl@battelle.org)

Jeanne M. Rosser Manager, Information Collection and Processing; (rosserj@battelle.org)

Steven A. Jones Manager, Inquiry and Referral Service; (jones@battelle.org)

Mary Jo Waters Newsletter Editor; (watersm@battelle.org)

Judith M. Shetterly CBIAC Administrator; (shetterj@battelle.org)

CBIAC SUPPORT STAFF

Gloria D. Akins (akinsg@battelle.org)

Sallie A. Dawson (dawsons@battelle.org)

Elizabeth Hamm (hamme@battelle.org)

Barbara A. Hoffman (hoffmanb@battelle.org)

Mary Frances Tracy (tracymf@battelle.org)

The Contracting Officer's Technical Representative for the CBIAC is Mr. Joseph Williams. He can be reached through his E-Mail address at jdwillia@apgea.army.mil or at the following address:

Technical Director, ERDEC
Attn: SCBRD-RTA (Mr. Joseph Williams)
APG-EA, MD 21010-5423

NEW CBIAC PRODUCT: CHEMICAL WARFARE AGENT SIMULANT TRAINING KIT



The **CBIAC** and its parent company, **Battelle**, have developed a simulant training kit for classroom instruction purposes. The simulant training kit (shown in the photo) includes simulants for nerve agents **Soman (GD)**, thickened Soman (**TGD**), Sarin (**GB**) and VX, as well as blister agents Distilled Mustard (**HD**) and Lewisite (**L**).

Chemical properties simulated include both visual (color/viscosity) and scent. Visual simulants are contained in clear glass vials and sealed so access is not easily achieved. The scent simulants are added into a sponge material and contained inside dark-brown glass vials. The chemical properties are based upon literature and first-hand accounts from personnel experienced in working within chemical surety facilities. Each glass vial is marked appropriately with the designation "simulant".

The kit includes a Material Safety Data Sheet (MSDS) for each simulant chemical. Glass vials are color coded on the screw caps with the appropriate agent designation. A set of instructions are also included on the inside of the lid cover which explains the basics of the kit and provides instruction on the use of the kit. A pair of laboratory rubber gloves are provided with the kit, as well as basic instructions in the event of a visual liquid simulant spill if a vial is accidentally broken.

The Chemical Warfare Agent Simulant Training Kit is available through the **CBIAC**. The price is \$300.00. To order, contact Ms. Judith Shetterly (E-Mail: shetterj@battelle.org), **CBIAC** Administrator. Please allow 4-6 weeks for delivery.

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